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Neodymium

**ARMSTRONG MAGNETICS INC**



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## NEODYMIUM MAGNETS

Most powerful  
easily corrupted  
Hard and brittle

Stock sizes of Neodymium Magnets



Neodymium magnets are dark gray alloy. They are composed of Neodymium, Iron and Boron. Density of Neodymium magnets is .77lb/in<sup>3</sup> (7.5g/cm<sup>3</sup>).

Neodymium magnets are manufactured in a metallurgy process through alloying, crushing, powdering, pressing w/magnetic orientation, sintering, then cutting, coating, inspecting and packing before shipment.

Neodymium magnets offer the highest (BH)<sub>max</sub> and high H<sub>ci</sub>

(BH)<sub>max</sub>, the Maximum Energy Product, of Neodymium magnets is highest of any kind of permanent magnets today in the world. (BH)<sub>max</sub> at different grades of Neodymium magnets is 27 to 50 MGOe.

Neodymium magnets have extremely resistance to demagnetization with H<sub>ci</sub>, Intrinsic coercive force, over 12,000 Oe.

Because of very high (BH)<sub>max</sub> and H<sub>ci</sub>, Neodymium magnets could be used as a reversible medium for large amount of energy transformation in miniaturized application where a strong magnetic demagnetization field exists, such as computer hard drive.

Armstrong Magnetics stocks N35 and N40 Neodymium magnets in disk and rectangle shapes for customers' immediate needs and accept special orders for custom Neodymium magnets.

Neodymium magnets are most powerful of any kind of magnetic materials

Br of Neodymium magnets are much more than 11,000 Gauss. Therefore, Neodymium magnets have strong holding strength on metal surface and could be used as component for holding, separating, etc.

<http://www.armsmag.com/neodymium.htm>

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Neodymium magnets must be carefully handled to avoid personal injury and material damage due to its extremely magnetic strength and brittle property.

Neodymium magnets are sensitive to temperature change and even lose magnet properties at high temperature

Neodymium magnets lose -0.09 ~ -0.13% of Br/C and can work stably under 80°C for low Hci Neodymium magnets and 150°C for high Hci Neodymium magnets.

Neodymium magnets are corrupted in humid environment  
Surface protection is strongly recommended, such as plating, varnishing and encapsulating.

Neodymium magnets are hard and brittle  
Neodymium magnets can be abrasively machined with coolant served to absorb heating and dust. Without coolant, rare earth magnets can crack and chip by the heat produced during high speed cutting or grinding, and the sparks contain the easily oxidized grinding dust that can cause fire!

**Tolerance of Neodymium magnets**  
Unless otherwise specified, tolerance on dimension of magnetization is  $\pm 0.05\%$ . Other dimensions are  $\pm 1.5\%$  or  $\pm 0.10\%$ , whichever is greater.

MAGNETIC PROPERTY OF NEODYMIUM MAGNETS

Grade	Br (Gauss)	Hc (Oe)	Hci (Oe)	(BH)max (MGO)	Max Working Temp. (°C / °F)
35	11,700 - 12,100	>10,900	>12,000	35	80 / 176
40	12,500 - 12,800	>10,500	>12,000	40	80 / 176
35H	12,500 - 11,700	>11,000	>17,000	35	120 / 245
35SH	11,700 - 12,500	>11,000	>20,000	35	150 / 300



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